Amendments to the Claims

Please amend the claims as follows:

[C1] (currently amended) A process for preparing syngas, comprising:

partially oxidizing a first hydrocarbon portion with oxygen in a partial oxidation reactor to produce a first reactor effluent;

cooling the first reactor effluent to a temperature from 650° to 1000°C, said cooling including direct heat exchange with water introduced into the first reactor effluent as a quench fluid;

supplying the cooled first reactor effluent to a reforming exchanger;

passing a second hydrocarbon portion with steam through a catalyst zone in the reforming exchanger to form a second reactor effluent, wherein the first and second hydrocarbon portions are supplied in a weight ratio of from 40:60 to 60:40;

discharging the second reactor effluent from the catalyst zone to form an admixture with the first reactor effluent;

passing the admixture across the catalyst zone in indirect heat exchange therewith to cool the admixture and heat the catalyst zone; and

collecting the cooled admixture from the reforming exchanger.

[C2] (canceled)

[C3] (currently amended) The process of claim 1 [[2]], wherein the first reactor effluent cooling further comprises indirect heat exchange downstream from the direct heat exchange and upstream from the reforming exchanger.

[C4] (currently amended) The process of claim 3, wherein the first reactor effluent cooling by indirect heat exchange comprises heating the second hydrocarbon portion upstream from the catalyst zone in a cross exchange.

[C5] (canceled)

[C6] (canceled)

[C7] (original) The process of claim 1, wherein the catalyst zone comprises catalyst tubes.

[C8] (currently amended) The process of claim 4 [[5]], wherein the second hydrocarbon portion is supplied to a tube side of the reforming exchanger and passed through the catalyst tubes.

[C9] (currently amended) The process of claim 8 [[5]], wherein the cooled first reactor effluent is supplied to a shell side inlet of the reforming exchanger.

[C10] (currently amended) The process of claim 9 [[7]], wherein the shell side inlet is adjacent an outlet end of the catalyst tubes.

[C11] (canceled)

[C12] (canceled)

[C13] (canceled)

[C14] (currently amended) An apparatus for producing syngas, comprising:

partial oxidation reactor means for partially oxidizing a first hydrocarbon portion with oxygen to produce a first reactor effluent;

means for cooling the first reactor effluent to a temperature from 650° to 1000°C, said cooling means including means for introducing water into the first reactor effluent as a quench fluid for direct heat exchange;

means for supplying the cooled first reactor effluent to a reforming exchanger;

means for passing a second hydrocarbon portion with steam through a catalyst zone in the reforming exchanger to form a second reactor effluent, wherein the first and second hydrocarbon portions are supplied in a weight ratio of from 40:60 to 60:40;

means for discharging the second reactor effluent from the catalyst zone to form an admixture with the first reactor effluent;

means for passing the admixture across the catalyst zone in indirect heat exchange therewith to cool the admixture and heat the catalyst zone;

means for collecting the cooled admixture from the reforming exchanger; and

means for shift converting the collected admixture to increase hydrogen content.

[C15] (canceled)

[C16] (canceled)

[C17] (canceled)

[C18] (canceled)

[C19] (canceled)

[C20] (canceled)

[C21] (canceled)

[C22] (previously presented) The process of claim 1 wherein the partial oxidation reactor is a non-catalytic reactor.

[C23] (previously presented) The process of claim 1 wherein the partial oxidation reactor is a free flow, unpacked, non-catalytic reactor.

[C24] (previously presented) The process of claim 1 wherein a temperature of the first reactor effluent is greater than 1100°C.

[C25] (currently amended) A process for preparing a hydrogen-rich syngas, comprising:

partially oxidizing a first hydrocarbon portion with oxygen in a non-catalytic partial oxidation reactor to produce a first reactor effluent having a temperature greater than 1100°C;

cooling the first reactor effluent to a temperature from 650° to 1000°C;

said cooling including:

direct heat exchange with water introduced into the first reactor effluent as a quench fluid; and

indirect heat exchange in a cross exchange downstream from the direct heat exchange and upstream from the reforming exchanger comprising heating the second hydrocarbon portion upstream from the catalyst zone;

supplying the cooled first reactor effluent to a reforming exchanger;

passing a second hydrocarbon portion with steam through a catalyst zone in the reforming exchanger to form a second reactor effluent, wherein the first and second hydrocarbon portions are supplied in a weight ratio of from 40:60 to 60:40;

discharging the second reactor effluent from the catalyst zone to form an admixture with the first reactor effluent;

passing the admixture across the catalyst zone in indirect heat exchange therewith to cool the admixture and heat the catalyst zone; and

collecting the cooled admixture from the reforming exchanger.

[C26] (canceled)

[C27] (canceled)

[C28] (canceled)

[C29] (canceled)

[C30] (canceled)

[C31] (previously presented) The process of claim 25, wherein the catalyst zone comprises catalyst tubes.

[C32] (currently amended) The process of claim 31 [[29]], wherein the second hydrocarbon portion is supplied to a tube side of the reforming exchanger and passed through the catalyst tubes.

[C33] (currently amended) The process of claim 32 [[29]], wherein the cooled first reactor effluent is supplied to a shell side inlet of the reforming exchanger.

[C34] (currently amended) The process of claim 33 [[31]], wherein the shell side inlet is adjacent an outlet end of the catalyst tubes.

[C35] (canceled)

[C36] (canceled)

[C37] (canceled)

[C38] (new) The process of claim 1, wherein the partial oxidation reactor, catalytic reactor and the cooling of the first reactor effluent are operated to favor hydrogen production over carbon monoxide production.

[C39] (new) The process of claim 1, further comprising shift converting the collected admixture to increase hydrogen content.

[C40] (new) The process of claim 1, wherein the cooled first reactor effluent supplied to the reforming exchanger has a water content in excess of stoichiometric for shift conversion of CO.

Respectfully submitted,

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